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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,294	09/16/2003	Tadashi Amada	02887.0249	4299

22852 7590 10/20/2008

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EXAMINER	
LAO, LUN S	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
10/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,294	AMADA ET AL.	
	Examiner	Art Unit	
	LUN-SEE LAO	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This action is in response to the amendments filed on 06-19-2008. Claims 21-24 have been added. Claims 1-24 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "directivity detector repeats the detection of the input sound multiple times, supplies the voice recognition unit with the output of the microphone array obtained by the directivity set by the directivity setting unit, and conducts the subsequent detection of the direction of the input sound" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 23 recites "the directivity detector repeats the detection of the input sound multiple times, supplies the voice recognition unit with the output of the microphone array obtained by the directivity set by the directivity setting unit, and conducts the subsequent detection of the direction of the input sound". However, the specification does not clearly disclose the " the directivity detector repeats the detection of the input sound multiple times, supplies the voice recognition unit with the output of the microphone array obtained by the directivity set by the directivity setting unit, and conducts the subsequent detection of the direction of the input sound" will be performed. It is not supported in the specification nor in any figures and any claim originary presented.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5 and 7-20, 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Nogi Kazuyuki (JP 2001-296891)(hereafter as Nogi).

Regarding Claim 1, Nogi discloses a directional setting apparatus, comprising (see fig. 1):

a keyword determination unit (see fig.1 (5)) configured to determine whether a certain keyword is included in a sound signal outputted from a microphone array having a plurality of microphones (see fig. 1 (1a,1b,1c)) and abstract);

a voice recognition unit (see fig.1 (44)) which detects a certain voice included in the sound signal outputted from the microphone array and set a directional determination period indicating a detection period of said certain voice (see fig.3 (A2)), if it is determined that the certain keyword is included (see fig. 3(A3)) and see detail description page 4 [0014]-page 6 [0020]);

a voice direction detector (see fig.1 (3)) which detects an occurrence direction of said certain voice included in the sound signals outputted from the plurality of microphones

in said directional determination period(see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]); and

a directional controller (see fig.1 (41)) which controls directivity of a prescribed apparatus based on the occurrence direction detected by the voice detection detector (see detail description page 4 [0012]- [0014]).

Regarding Claim 2, Nogi discloses said directional controller controls (see fig. 1(41)) the directivity of said prescribed apparatus, based on the sound signal which is generated by delaying the sound signals outputted (reads on sound buffer) from said plurality of microphones (1) in said directional determination period with locations of said microphones and the amount of delay based on the direction of arrival of the sound signals and adding (3) the sound signals to each other (see detail description page 4 [0012]- [0014]).

Regarding Claim 3, Nogi discloses a detection result storage which stores directional data indicating occurrence direction of said certain voice detected by said voice direction detector, wherein said directional controller controls directivity of said certain apparatus based on the directional data of said certain voice in said directional determination period, among the directional data stored in said detection result storage (see fig.1 and detail description page 4 [0012]- [0014]).

Regarding Claim 4, Nogi discloses a sound storage which stores said sound signal, wherein said directional controller controls directivity of said prescribed apparatus based on said sound signals in said directional determination period, among the sound signal

stored in said detection result storage (see fig.1 and detail description page 4 [0012]-[0014]).

Regarding Claim 5, Nogi discloses said prescribed apparatus is said microphone array (see fig.1 (1)); and said directional controller controls the directivity of said microphone array based on the detection result of said voice direction detector (see fig.1 and detail description page 4 [0012]- [0014]).

Regarding Claim 7, Nogi discloses said voice recognition unit detects said certain voice included in the sound signal outputted from a prescribed microphone among said plurality of microphones (see fig.1 (1) and detail description page 4 [0012]- [0014]).

Regarding Claim 8, Nagai discloses wherein said voice recognition unit detects said certain voice included in the output of said directional controller (see fig.1 (41)) and detail description page 4 [0012]- [0014]).

Regarding Claim 9, Nogi discloses said voice direction detector detects occurrence direction of said certain direction based on a result of repeating the detection of occurrence direction of said certain voice by a plurality of times (see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 10, Nogi discloses said directional determination period is a partial period in detection period of said certain voice (see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 11, Nogi discloses said directional determination period is a period within a detection period of said certain voice and in which voice level of said

certain voice is not less than a prescribed level (see figs. 1-3 and see detail description page 2 [0007]-page 3 [0008]).

Regarding Claim 12, Nogi discloses said directional controller can individually control the directivities of said plurality of microphone, respectively (see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 13, Nogi discloses said directional controller supplies a sound signal obtained by combining the sound signals outputted from said plurality of microphones (see fig.1 (1)) to said voice recognition unit without control of the directivity, when said voice recognition unit detects said certain voice at first time, and controls the directivity of the sound signals outputted from said plurality of microphones based on the prior detection result by said voice recognition unit (5 in fig.1) to supply the sound signal to said voice recognition unit (5), when said voice recognition unit detects said certain voice at second or more times (see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 14, Nogi discloses said voice recognition unit (5 in fig.1) detects multiple types of said certain voices and a plurality of said directional determination periods corresponding to these certain voices; and said directional controller (41) independently controls the directivity of said prescribed apparatus based on the sound signal outputted from said plurality of microphones (1 in fig.1) in said plurality of directional determination period (see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 15, Nogi discloses said voice recognition unit detects a voice indicating a setting of a certain directivity and a voice indicating a setting release of said certain directivity; and said directivity controller suspends the directional control of said prescribed apparatus when said voice recognition unit detects the voice which indicates setting release of said certain directivity (see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 16, Nogi discloses said directional controller (see fig.1 (41)) releases setting of said certain directivity, and controls directivity of said prescribed apparatus based on the detection result of a new certain voice when said voice direction detector (3) detects occurrence direction of the new certain voice, before said voice direction detector (3) detects the voice indicating the setting release of said certain directivity (see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 17, Nogi discloses said certain voice is a voice including a meaningful certain keyword (see figs. 1-3 and see abstract and detail description page 4 [0014]-page 6 [0020]).

Regarding Claim 18, Nogi discloses a directional setting system, comprising (see fig.1):

a microphone array having a plurality of microphones (Fig. 1 (1));

a keyword determination unit (see fig.1 (5)) configured to determine whether a certain keyword is included in a sound signal outputted from the microphone array (see abstract);

a voice recognition unit (see fig.1 (44)) which detects a certain voice included in the sound signal outputted from said microphone array and sets a directional determination period indicating a detection period of said certain voice (see fig.3 (A2)), if it is determined that the certain keyword is included (see fig. 3(A3)) and see detail description page 4 [0014]-page 6 [0020]);

a voice direction detector (see fig.1 (3)) which detects an occurrence direction of said certain voice included in the sound signals outputted from the plurality of microphones in said directional determination period(see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]); and

a directivity controller (41) which controls directivity of a prescribed apparatus based on the occurrence direction detected by the voice direction detector ((3) in fig. 1 and see detail description page 4 [0012]- [0014]).

Claim 19 is essentially similar to Claim 18 and is rejected for the reasons stated above apropos to Claim 18.

Claim 20 is essentially similar to Claim 19 and is rejected for the reasons stated above apropos to Claim 19.

Regarding Claim 23, as base on 112 first paragraph problem state above, Nogi discloses a directional setting apparatus, comprising: a microphone array having a plurality of microphones, each microphone importing an input sound(see fig. 1 (1a,1b,1c)) and abstract);

a voice recognition unit (see fig.1 (44)) configured to detect a certain keyword included in a sound signal based on the input sound and set a directional determination

period based on an occurrence time of a sound signal corresponding to the certain keyword (see fig. 3(A3)) and see detail description page 4 [0014]-page 6 [0020] and means page 4 [0039]);

a directivity detector (see fig.1 (5)) configured to detect a direction of the input sound in the directional determination period and output the detected result; and

a directivity setting unit(see fig.1 (31)) configured to set a directivity of a prescribed apparatus based on the detected result of the directivity detector, wherein the directivity detector repeats the detection of the input sound multiple times(see claims 2-4), supplies the voice recognition unit with the output of the microphone array obtained by the directivity set by the directivity setting unit, and conducts the subsequent detection of the direction of the input sound(see figs 1-3 and detail description page 4 [0012]-[0014]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nogi (JP 2001-296891) in view of USPAT 6,469,732 to Chang et al. (hereafter Chang).

Regarding Claim 6, Nogi does not expressly disclose said prescribed apparatus is a image pick-up device; and said directional controller controls image pick-up direction of said image pick-up device based on the detection result of said voice direction detector.

However, Chang discloses said prescribed apparatus is a image pick-up device; and said directional controller controls image pick-up direction of said image pick-up device based on the detection result of said voice direction detector(Figs. 1-3 and col.3 line 37-col. 4 line 68).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nogi with the teaching of Chang to provide accurate location of a video conference using as few as microphones in a 3-dimensional configuration and more convenience to the user.

Claim 24 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

8. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nogi (JP 2001-296891) in view of USPAT 6,804,396 to Higaki et al. (hereafter Higaki).

Consider claim 21 Nogi teaches a directional setting apparatus, comprising:

a microphone array having a plurality of microphones, each microphone importing an input sound(see fig. 1 (1a,1b,1c)) and abstract);

a voice recognition unit(see fig.1 (44)) configured to detect a certain keyword included in a sound signal based on the input sound and set a directional determination period based on an occurrence time of a sound signal corresponding to the certain keyword

(see fig. 3(A3)) and see detail description page 4 [0014]-page 6 [0020] and means page 4 [0039]);

a directivity detector (see fig.1 (5)) configured to detect a direction of the input sound in the directional determination period and output the detected result (see fig. 4 and see detail description page 4 [0014]-page 6 [0020]); and

a directivity setting unit (see fig.1 (31)) configured to set a directivity of a prescribed apparatus based on the detected result of the directivity detector (see detail description page 4 [0012]- [0014]); but Nogi does not explicitly teach wherein the voice recognition unit recognizes a keyword for releasing the directivity set by the directivity setting unit and outputs a directivity release signal; and the directivity setting unit releases the directivity of the prescribed apparatus when the directivity release signal is supplied from the voice recognition unit.

However, Higaki teaches wherein the voice recognition unit recognizes a keyword for releasing the directivity set by the directivity setting unit and outputs a directivity release signal (see figs. 2-5 and abstract); and the directivity setting unit releases the directivity of the prescribed apparatus when the directivity release signal is supplied from the voice recognition unit (see figs. 2-5 and col.2 line 38-col. 3 line 3 and col.6 line 19-36).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nogi with the teaching of Higaki to provide a saving energy for the system.

. Consider claim 22 Nogi as modified by Higaki teaches the directional setting apparatus wherein the directivity setting unit stores the detected result of the directivity

detector when the detected result is given before the directivity release signal is inputted, and sets the directivity of the prescribed apparatus based on the detected result of the directivity detector store after the directivity release signal is inputted (in Higaki, see figs. 2-5 and see col. 1 lines 5-8, col.2 line 38-col. 3 line 3 and col.6 line 19-36).

Response to Arguments

9. Applicant's arguments with respect to claim1-24 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that Nogi does not discloses "a voice recognition unit which detects a certain voice included in the sound signal outputted from the microphone array and sets a directional determination period indicating a detection period of said certain voice, if it is determined that the certain keyword is included," "a voice direction detector which detects an occurrence direction of said certain voice included in the sound signals outputted from the plurality of microphones in said directional determination period," and "a directional controller which controls directivity of a prescribed apparatus based on the occurrence direction detected by the voice detection detector." (see the remarks page 11 second paragraph).

The examiner disagrees. Nogi discloses a voice recognition unit (see fig.1 (44)) which detects a certain voice included in the sound signal outputted from the microphone array and set a directional determination period indicating a detection period of said

certain voice (see fig.3 (A2)), if it is determined that the certain keyword is included (see fig. 3(A3)) and see detail description page 4 [0014]-page 6 [0020]);

a voice direction detector (see fig.1 (3)) which detects an occurrence direction of said certain voice included in the sound signals outputted from the plurality of microphones in said directional determination period(see figs. 1-3 and see detail description page 4 [0014]-page 6 [0020]); and

a directional controller (see fig.1 (41)) which controls directivity of a prescribed apparatus based on the occurrence direction detected by the voice detection detector (see detail description page 4 [0012]- [0014]). It meets the limitation as recited.

Applicant further argued that Nogi does not teach a "certain keyword" and a "certain voice" are separately used to set the directional determination period and control directivity, respectively (see the remarks page 12 first paragraph).

The examiner responds the argument "a certain keyword and a certain voice are separately used to set the directional determination period and control directivity, respectively" is not claimed and thus moot.

Applicant further argued that the rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Nogi in view of Chang. A prima facie case of obviousness has not been established (see the remarks page 13 second paragraph).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Nigo and Chang both discloses array of the microphones to detect the sound directional.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nogi with the teaching of Change to provide accurate location of a video conference using as few as microphones in a 3-dimensional configuration and more convenience to the user.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Drennan (US 2003/0177012) is recited to show how other related directional setting apparatus, directional setting system, directional setting method and directional setting program.

12. Any response to this action should be mailed to:

Mail Stop ____(explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:
(571) 273-8300

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501 The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See
/LUN-SEE LAO/
Examiner, Art Unit 2614
Patent Examiner
US Patent and Trademark Office

Knox
571-272-7501
Date 10-10-2008

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2615